

Research on the relationship between the level of innovative activity and the profitability of enterprises in the oil and gas sector of Kazakhstan

Olga Moskalenko*

PhD in Economics, Associate Professor
J. Balasagyn Kyrgyz National University
720033, 547 Frunze Str., Bishkek, Kyrgyz Republic
<https://orcid.org/0000-0002-4599-4817>

■ **Abstract.** The objective of this research was to assess how innovative activity influences the financial performance of enterprises in Kazakhstan's oil and gas sector. The research was empirical and covered the period 2020-2024, using official financial statements of Joint Stock Company "KazMunayGas" and corporate documents on innovation programmes. The methodology combined statistical analysis of production volumes and financial dynamics with content analysis of strategic projects. Results showed that oil production fluctuated between 84-89.9 million tonnes, totalling 433.1 million tonnes, while gas production rose from 53-54 to 60.5 billion m³. In 2024, Tengiz, Karachaganak and Kashagan fields provided over 60% of national output (27.8, 12.4 and 17.9 million tonnes). Financial indicators reflected both innovation effects and market volatility: in 2020, net profit was only 172 billion tenge with revenue of 3,625 billion, while in 2022 profit peaked at 1,307 billion and revenue at 8,693 billion. By 2024, net profit reached 1,094 billion tenge, free cash flow 1,199 billion, and net debt fell to 1,163 billion – the lowest in five years. Investments in technological projects exceeded 250.8 billion tenge, with 98.2 billion for high-tech areas. More than 500 initiatives, including digital twins and artificial intelligence systems, were implemented in 2024. The results of this study can be used to develop an effective strategy for the innovative development of oil and gas enterprises in Kazakhstan in order to enhance their financial stability and competitiveness

■ **Keywords:** strategies; revenue; investment; competitiveness; efficiency

■ Introduction

In the current conditions of Kazakhstan's development, the oil and gas industry remains a key driver of economic growth, generating a significant share of state revenues and providing foreign exchange earnings. However, increased competition in global energy markets, fluctuations in hydrocarbon prices and shifts in the global energy balance require enterprises to find new ways to improve their performance. In Kazakhstan's oil and gas sector, reliance on the raw material model of development persisted, reducing sustainability and creating risks for the country's economic security. A. Maldynova *et al.* (2023) examined the innovative potential of enterprises and demonstrated that internal expenditure on innovation and the volume of innovative products have a direct positive impact on companies' innovative development. The authors showed that the growth of

innovative activity is an important prerequisite for increasing competitiveness and modernisation of production processes. On the other hand, N. Kurmanov *et al.* (2022) conducted an empirical analysis of innovation processes in oil and gas regions, using a multifactor model to identify key drivers of innovation dynamics. They identified five groups of factors: regional economic development and agglomeration effects, market potential and infrastructure, structural characteristics, human capital and investment support.

In Kazakhstan, the key challenge remained the instability of oil and gas region development due to their high dependence on market fluctuations, particularly price factors, interest rates and equipment imports. The analysis of innovative development directions discussed by S. Beisembekova *et al.* (2022) relied on theoretical models that

■ Suggested Citation:

Moskalenko, O. (2026). Research on the relationship between the level of innovative activity and the profitability of enterprises in the oil and gas sector of Kazakhstan. *Management and Business*, 4(1), 59-69. doi: 10.59214/mb/1.2026.59.

*Corresponding author (olushka_ms@mail.ru)



evaluated how spending on research and development, technology transfer and professional training affect economic growth. Meanwhile, S. Bibi (2024) emphasised that although Kazakhstan benefited from the oil and commodity supercycle of 2003-2014 with high growth rates, persistent current account deficits were observed due to large dividend payments to foreign corporations and capital outflows. The study also highlighted the lack of successful diversification of production and continuing vulnerability to external shocks, making the prospects for long-term development uncertain.

Kazakhstan has significant reserves of oil and gas, but their predominant export in raw form reduces opportunities for creating added value and increases dependence on external conditions. Research on the refining sector by U. Shalbolova *et al.* (2024) demonstrated that modernisation of the three key oil refineries in Atyrau, Pavlodar and Shymkent boosted the output of light petroleum products by 4.3 million tonnes annually, raising the share of petrol to 70% and diesel fuel to 20%. Despite these achievements, Kazakhstan's position as a major oil and gas exporter remained marked by imbalance in relations with China and dependence on external factors. Complementary findings from B. Du *et al.* (2024) revealed that a 1% rise in Gross Domestic Product (GDP) in both Kazakhstan and China increased trade flows by 1.47%, yet growth in domestic production did not translate into proportional export expansion to China, given the country's prioritisation of European markets and rising domestic consumption.

The Kazakh economy is largely dependent on oil and gas, which makes the implementation of sustainable development principles especially relevant. Research by G. Beisembayev & A. Akhmetkyzy (2025) showed that the effectiveness of Environmental, Social and Governance (ESG) practices in oil and gas companies is uneven: high environmental performance often coincides with weaker outcomes in the social sphere and corporate governance. Their findings also revealed a strong correlation between wage levels and pollution, pointing to economic-environmental trade-offs, while emphasising that ESG approaches can serve as a tool for modernisation and risk reduction. At the same time, many enterprises continue to rely on outdated equipment, which lowers efficiency. Additional insights provided by S. Zhumadilla *et al.* (2024) highlighted key drivers of innovation activity, including the share of knowledge-intensive products, personnel qualifications, capital intensity of equipment, investment efficiency and environmental performance. Among these, the most decisive factors proved to be human resources potential and investment efficiency, whereas environmental aspects remain weakly integrated.

The studies revealed low patent activity, weak science-business ties, dependence on foreign capital, limited diversification, ESG barriers and low innovation, underscoring the need for further research on financing, sustainability and long-term effects. The purpose of this study was to explore the relationship between innovative activity and the financial performance of Kazakhstan's oil and gas

enterprises. The main objectives of the study were: to analyse the dynamics of innovative activity in oil and gas enterprises and its relationship with key financial indicators; to identify factors that restrain or stimulate innovative processes; and to assess their impact on companies' efficiency.

■ Materials and Methods

This study was empirical in nature and covered the period 2020-2024. It determined the dynamics of oil and gas production in Kazakhstan during this period based on official reports and statistical materials (Kazakhstan produced 85.7 Mt of oil and..., 2021; Kazakhstan raises oil and gas..., 2023; Kazakhstan's Energy Ministry again lowers outlook..., 2024). The application of statistical analysis made it possible to trace changes in oil and natural gas production over a five-year period and link them to key production and institutional factors. The choice of time-frame was due to the need to cover the crisis phenomena of 2020, associated with the global oil price collapse and reduced demand for energy resources during the COVID-19 pandemic, the subsequent recovery phase, and the implementation of large-scale innovation projects in 2023-2024.

The financial part of the analysis was based on indicators of JSC NC KazMunayGas (n.d.), the largest integrated operator, which reflects the general trends in the industry. For this purpose, the company's official annual reports for 2020-2024 were used (Key 2021 financial results, 2022; JSC NC KazMunayGas announces..., 2024; JSC NC KazMunayGas announces..., 2025). The main indicators included revenue, net profit, Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA), free cash flow, gross debt and net debt. Additionally, net profit margin and EBITDA margin were applied to assess profitability. This approach made it possible to examine the company's financial stability and operational efficiency under conditions of external volatility.

To characterise innovation activity, strategic documents and investment programmes of KazMunayGas were used, in particular Tengiz Effect – 2033 (2024) and the Future Growth Project – Wellhead Pressure Management Project (Tengizchevroil, n.d.b). Content analysis of corporate materials made it possible to identify the main areas of innovation expenditure and assess their role in the company's long-term development. Karachaganak Petroleum Operating's innovation investments in 2024 and planned programmes for 2023-2026 were also taken into account (Karachaganak Petroleum Operating, n.d.; Operator to invest over \$1.7 bln..., 2023), which made it possible to analyse the scale of innovation expenditure by different operators. The analysis further included Kazakhstan's total oil and gas spending in 2024 (Kazakhstan to invest \$15 billion in oil and gas..., 2025), which enabled a comparison of corporate and state innovation programmes. The study also incorporated an assessment of prospects for enhancing innovation activity and improving profitability in Kazakhstan's oil and gas sector, outlining strategic directions for future development. It took into account the provisions of

the roadmap for 2024-2030 (Kazakh Government approves 2024-2030..., 2024), strategic directions for the industry's development until 2040 (Kazakhstan Greenlights 2025-2040..., 2025), as well as documents aimed at human capital development (Mamyshev, 2025) and the environmental aspects of transformation (Decree of the President of the Republic of Kazakhstan No. 121, 2023).

■ Results and Discussion

Empirical analysis of the relationship

between innovation processes and financial results

Between 2020 and 2024, Kazakhstan's oil and gas sector remained a fundamental pillar of the national economy,

securing a substantial share of export revenues and contributing significantly to the state budget. Its role during this period was shaped not only by production volumes, but also by the growing need to integrate innovation as a response to external volatility and structural challenges. The sector faced global oil price shocks, pandemic-related disruptions and a subsequent recovery phase, while simultaneously launching large-scale modernisation and digitalisation projects. Figure 1 presents the dynamics of oil and gas production in Kazakhstan over the 2020-2024 periods, providing the basis for further empirical assessment of the link between innovation activity and financial performance.

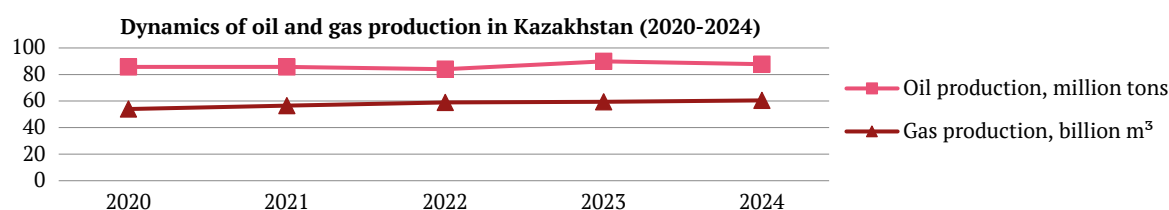


Figure 1. Dynamics of oil and gas production in Kazakhstan (2020-2024)

Source: compiled by author based on Kazakhstan produced 85.7 Mt of oil and condensate in 2020 (2021), Kazakhstan raises oil and gas condensate output by 7% in 2023 (2024), Kazakhstan's Energy Ministry again lowers outlook for domestic oil output in 2024 (2024)

Oil and condensate production volumes during this period fluctuated between 84 and 89.9 million tonnes per year, with the five-year total amounting to around 433.1 million tonnes. In 2020-2021, output was maintained at 85.7 million tonnes, but in 2022 it declined to 84 million tonnes (Kazakhstan produced 85.7 Mt of oil and..., 2021). By 2023, production had risen to 89.9 million tonnes, representing a 7% increase compared with the previous year, before easing slightly to 87.8 million tonnes in 2024. Natural gas production showed a steady upward trend, from 53-54 billion m³ in 2020 to 60.5 billion m³ in 2024, confirming the overall expansion of production capacities in the sector.

The largest contribution came from three key fields – Tengiz, Karachaganak and Kashagan. In 2024, Tengiz accounted for 27.8 million tonnes of oil, or 31.7% of national output. Despite temporary reductions caused by repair work, the completion of large-scale innovation projects – the Future Growth Project and the Wellhead Pressure Management Project – increased production capacity and enhanced stability. Karachaganak delivered around 12.4 million tonnes in 2024, representing a modest rise of 1.6%, while Kashagan lifted output to 17.9 million tonnes

(+2.9% year-on-year). Both fields demonstrated relative stability, though they remained dependent on periodic repairs and technical modernisations (Mashaev, 2025). Overall, innovation and infrastructure projects played a decisive role in sustaining and expanding production. They not only supported the sector's competitiveness but also generated broader effects: over 90,000 jobs during construction, substantial orders for local enterprises and investment in related industries (Tengizchevroil Fact Sheet..., 2024). These large-scale production and innovation efforts were directly reflected in the financial performance of the leading national company, KazMunayGas, whose results captured both the benefits of modernisation and the challenges of external market volatility.

The financial results of JSC NC KazMunayGas (n.d.) in 2020-2024 reflect the complex impact of both external and internal factors. The dynamics of key indicators were shaped by fluctuations in global oil prices, macroeconomic conditions, investment programs of the company, and its ability to maintain stability in times of crisis. To summarise the trends in the company's financial performance, the main indicators are presented in Table 1.

Table 1. Financial indicators of JSC NC KazMunayGas in 2020-2024 (bln KZT)

Year	Revenue	Net profit	EBITDA	Free cash flow	Gross debt	Net debt
2020	3,625	172	810	50	4,078	2,594
2021	5,839	1,197	1,609	669	3,746	2,204
2022	8,693	1,307	2,536	1,116	4,154	2,154
2023	8,320	924	1,995	984	3,757	1,645
2024	8,330	1,094	2,001	1,199	3,967	1,163

Source: compiled by author based on Key 2021 financial results (2022), JSC NC KazMunayGas announces 2023 FY financial results (2024), JSC NC KazMunayGas announces 2024 FY financial results (2025)

Analysis of Table 1 shows that in 2020 the company experienced a sharp decline in performance due to the collapse of oil prices and reduced demand for energy resources, which resulted in minimal free cash flow and critically low net profit. By 2021, financial results had rebounded, with revenues and profits more than doubling, reflecting the recovery of global oil markets. The peak of the five-year period came in 2022, when both revenue and EBITDA reached their highest levels, supported by large-scale innovation investments in refining and petrochemicals. In 2023, however, falling oil prices and weaker contributions from joint ventures reduced profitability by almost one third. By 2024 the company managed to stabilise operations: revenues remained steady, net profit exceeded 1.04 trillion KZT,

and net debt fell to its lowest level in five years, creating favourable conditions for financing further innovation and modernisation projects. Overall, the dynamics of financial indicators in 2020-2024 demonstrate that the company successfully overcame the 2020 crisis, adapted to volatile global markets and achieved gradual growth across most indicators. The implementation of innovation and capital projects strengthened its financial base and reduced debt pressure. At the same time, dependence on oil prices and fluctuations in profitability highlight the need for further diversification and enhanced innovation activity as the basis for long-term competitiveness. Table 2 highlights net profit margin and EBITDA margin as measures of operational efficiency.

Table 2. Profitability indicators of JSC NC KazMunayGas in 2020-2024

Year	Net profit margin (%)	EBITDA margin (%)
2020	4.74	22.34
2021	20.50	27.56
2022	15.04	29.17
2023	11.11	23.98
2024	13.13	24.02

Source: compiled by author based on Key 2021 financial results (2022), JSC NC KazMunayGas announces 2023 FY financial results (2024), JSC NC KazMunayGas announces 2024 FY financial results (2025)

Analysis of Table 2 shows that profitability indicators were highly sensitive to external volatility and internal efficiency measures. The lowest values were recorded in 2020, when the net profit margin fell to 4.74%, reflecting the company's inability to generate stable earnings under crisis conditions. In contrast, the peak was achieved in 2022, as the EBITDA margin exceeded 29.17%, confirming the highest level of operational efficiency during the five-year period. Although 2023 brought another contraction, by 2024 margins had stabilised above 24.02%, illustrating the company's capacity to restore efficiency through financial discipline and modernisation efforts.

Systematising the results of various studies shows that, regardless of the region or scale of analysis, the oil and gas sector has consistently been viewed as a key element of economic sustainability. For instance, D.F. Dongo & S. Relvas (2025) focused on the theoretical level, developing a universal framework of six dimensions of the energy transition and emphasising the need for innovation and modernisation to ensure sustainability. This conceptualisation echoed the empirical analysis of the Kazakhstani context, where the same factors were observed through specific financial indicators and investment programmes. A similar attention to innovation, though from a different angle, was evident in the work of Y. Alsuhaybany (2025), who examined the synergy between digital technologies and the circular economy in Saudi Arabia. Unlike the survey-based studies, he relied on quantitative data from manager questionnaires, enabling him to demonstrate empirically the positive impact of digitalisation and environmental practices on sectoral sustainability. In both

Saudi Arabia and Kazakhstan, the findings converged in identifying diversification and technological innovation as prerequisites for long-term competitiveness.

The environmental dimension was prominent in the study by A.M. Jaffe *et al.* (2022), which analysed "green" innovations in BRICS state-owned companies. The authors showed that these entities lag behind private corporations in developing low-carbon technologies. Once again, the importance of innovation and modernisation was emphasised, although the Kazakh analysis focused more closely on financial outcomes. A completely different perspective was proposed by R. Moralista and E.M. Martir (2023), who examined how oil price fluctuations affected the profitability of small businesses in the Philippines. Their findings highlighted the vulnerability of small entrepreneurs and underscored the need for risk management tools. Despite differences in scale, the common denominator was recognition of the critical role of oil and gas for economic stability.

The issue was brought to the global level by N. Hajiyev *et al.* (2024), who developed financial strategies for leading international corporations, emphasising diversification and flexible budget management in volatile conditions. This echoed the Kazakh case in terms of the need to combine financial sustainability with innovative development, although the approaches differed: N. Hajiyev *et al.* used global models, while the Kazakh study analysed specific indicators of KazMunayGas. Similarly, K. Halttunen *et al.* (2023) adopted a strategic perspective, showing that large international companies had limited willingness to abandon fossil fuels and that their steps towards

renewable energy remained insufficient. As in other studies, this confirmed the necessity of diversification and modernisation, albeit in a broader strategic context, while the Kazakh case highlighted the link between innovation and financial efficiency.

Between 2020 and 2024, Kazakhstan's oil and gas sector retained its role as a key driver of the economy, providing a significant share of export earnings and budget revenues. Despite fluctuations in production volumes and dependence on external conditions, it was innovation and infrastructure projects that enabled stability and created the foundations for growth. Modernisation at the Tengiz, Karachaganak and Kashagan fields demonstrated that technological investment was vital not only for expanding output, but also for strengthening energy security and generating additional socio-economic effects.

The level of innovative activity of enterprises in the oil and gas sector of Kazakhstan

Kazakhstan's oil and gas sector is a key element of the national economy, forming the basis of export revenues and a significant share of budget receipts. However, the competitiveness and sustainability of companies are increasingly determined not only by production volumes, but also by their ability to implement modern innovative solutions. Between 2020 and 2024, the national company KazMunayGas demonstrated the most structured approach to financing innovation. The total volume of investments in technological projects amounted to about 250.8 billion tenge, of which approximately 98.2 billion tenge was directed to high-tech areas aimed at strengthening competitiveness. Notably, in 2024 alone, the company implemented more than 500 technological initiatives focused on optimising production processes and improving management practices. These included advanced seismic surveys, the introduction of new chemical compositions for monitoring reservoir characteristics, radial fracturing technologies, digital twins, artificial intelligence systems for data analysis, and measures to increase energy efficiency at oil refineries. The scale of innovation activity reflects the systemic nature of transformations at KazMunayGas, aimed not only at boosting production but also at enhancing technological maturity (Innovative technology..., 2024).

In this context, KazMunayGas' strategy deserves special attention, demonstrating its commitment to greater transparency and a clear strategic focus on high-tech areas. A significant USD 15 billion investment plan accelerated petrochemical development, including a steam cracker unit for the Atyrau complex and the construction of an USD 11 billion polyethylene plant. Plans were also announced to create a urea plant worth USD 1.2 billion and a polyethylene terephthalate (PET) plant to reduce import dependence. At the same time, innovation activity across the sector remains relatively low, necessitating reforms to improve the effectiveness of innovation expenditure. Potential areas include developing new accounting methods for innovation costs, raising transparency requirements in financial

reporting, creating incentives for expanding research and development collaboration with universities and international partners, and prioritising product innovations with higher added value (Tengiz Effect – 2033..., 2024).

Despite these substantial total investments, the share of innovation expenditure in the company's overall cost structure remains low – approximately 1% of annual revenues. This meets regulatory requirements, which oblige extractive industry companies to allocate at least 1% to innovation and research and development. However, compared with global benchmarks, this remains modest: in OECD countries (OECD, n.d.), the share of investment in research and development (R&D) exceeds 2% of GDP, underlining the need to strengthen the financing of innovation in Kazakhstan's oil and gas sector. A key example of innovative investment is the Future Growth Project – Wellhead Pressure Management Project (FGP/WPMP) (Tengizchevroil, n.d.b), with a total investment of approximately USD 46.7 billion. The project aims to increase annual production at Tengizchevroil (n.d.a) (TCO) by 12 million tonnes, bringing output to 39 million tonnes per year. Its implementation relies on high-tech engineering solutions, including hydrogen sulphide injection technologies, modular equipment and modern drilling systems. FGP/WPMP is strategically important for Kazakhstan's oil and gas sector, reinforcing the country's position as a leading oil producer in the region. The project encountered a number of challenges at earlier stages, including delays and cost overruns, which highlighted the complexity of managing large-scale industrial initiatives in a changing global environment. Nevertheless, the expected outcomes – increased production, improved economic returns and a long-term impact on Kazakhstan's energy security strategy – make it a key driver of development. Recent developments confirm positive momentum: as of April 2024, TCO successfully began operation of WPMP facilities, including the transition of the first metering station to low pressure and the launch of the Pressure Boost Facility (PBF). This stage is critical for maintaining the full capacity of processing plants – about 28 million tonnes per year. The mechanism involves reducing wellhead pressure and subsequently increasing it to ensure stable operation of existing production lines. During 2024, additional PBF compressors are planned to be launched, with the gradual transition of the remaining metering stations (Tengiz Effect – 2033..., 2024).

A similar approach is used by KPO (Karachaganak Petroleum Operating, n.d.), which manages one of the largest gas condensate fields. The company integrates innovation expenditure into capital investment and operating costs rather than allocating it as a separate item. The main areas of KPO's innovation activity include reservoir management, enhanced oil recovery technologies, hydrogen sulphide processing systems and localisation of technologies to involve local contractors. In 2024, the company made significant investments in expansion and innovation projects. In particular, more than USD 970 million was invested in the first phase of the Karachaganak Expansion Project

(KEP-1A, 2021-2024), which involved the construction of the fifth injection compressor and other production facilities designed to ensure long-term production stability (KPO reports 2024 performance..., 2025). Additional investments of USD 735 million are planned for 2023-2026 for the construction of a sixth compressor and associated facilities, with total investment in the project expected to exceed USD 1.7 billion by 2027. In parallel, KPO is conducting a feasibility study for a new gas processing plant to increase output to 4 billion cubic metres and expand production of the propane-butane fraction. An important component of the company's innovation activity has been environmental projects. In 2024, a record gas utilisation level of 99.95% was achieved, while about USD 458.9 million was allocated to environmental initiatives, particularly improving energy efficiency and reducing methane emissions. In addition, advanced technologies and business processes are being introduced, aimed at the sustainable development of the field, with a strong focus on local content and the training of national personnel (Operator to invest over \$1.7 bln..., 2023).

In 2024, Kazakhstan's oil and gas sector intensified investments in technological innovation, integrated into a broader USD 15 billion investment plan focused on developing the petrochemical industry. The primary goal of these investments is to increase the share of industrial products with high added value and reduce dependence on raw material exports. Among the most significant projects is the activity of Kazakhstan Petrochemical Industries Inc. (n.d.), which has operated a polypropylene production complex worth USD 2.6 billion since 2022 (Kazakhstan to Invest \$15 Billion in Oil and Gas..., 2025). At the end of 2024, construction began on a new polyethylene plant with an investment of USD 7.4 billion, scheduled for completion in 2029. These projects are innovative in nature, relying on advanced hydrocarbon processing technologies and creating a domestic market for high-tech products. Innovation spending by individual companies is usually included in overall capital investment and rarely reported separately. According to available data, in 2024 total technological innovation spending within major fields and projects amounted to several million US dollars. On average, Kazakhstan's large oil and gas companies allocate about 1% or less of their annual revenues to innovation, which meets regulatory requirements but remains significantly below international standards. Investment conditions in 2024 were shaped by an average oil price of USD 75-85 per barrel and an exchange rate of around 460 tenge per US dollar. In such circumstances, large-scale projects in the oil and gas sector were valued in billions of dollars, with a substantial share including innovative components – advanced drilling technologies, well pressure management, digital solutions and environmental innovations (Investment potential – oil..., 2025). The analysis shows that although Kazakhstan's leading oil and gas companies – KazMunayGas, Tengizchevroil and Karachaganak – are making large-scale investments in technological projects, innovation

activity remains insufficient by international standards. Key features include the low share of innovation expenditure in total costs, limited transparency in financial reporting and a predominant focus on process rather than product innovations. This underlines the need for a comprehensive review of financing and evaluation approaches to enhance the competitiveness of Kazakhstan's oil and gas enterprises in global markets.

The analysis also revealed parallels with international research. Both this study and the work of V. Grosu *et al.* (2023) interpreted the oil and gas sector as a crucial factor in economic stability. In both cases, the interaction between financial stability and innovative activity was emphasised as determining long-term competitiveness. V. Grosu *et al.* employed econometric methods to substantiate the relationship between financial indicators and innovation, highlighting liquidity, risk management and adaptability in crisis conditions. While their research focused on Romanian companies in 2008-2022, the Kazakhstani analysis placed greater emphasis on structural investment aspects. Similarly, comparison with the work of S. Sletten *et al.* (2023) revealed convergences and differences. Both studies agreed that modernisation and technological change are prerequisites for sustainability and competitiveness. However, in Norway the emphasis was on business model innovation as a driver of the "green" transition. Suppliers showed a readiness to adopt renewable energy, whereas extractive companies remained conservative due to the high profitability of traditional operations. In Kazakhstan, the emphasis was on large-scale modernisation projects, but innovation spending remained limited at about 1% of revenues – markedly below international benchmarks.

Further insights were provided by B. Zengin & G. Kurt (2024), who examined the Turkish context. In both Turkey and Kazakhstan, innovation was shown to have a positive impact on profitability, although the methodologies and contexts differed significantly. B. Zengin & G. Kurt (2024) studied 45 manufacturing companies listed on Borsa Istanbul, demonstrating that R&D, patents and intangible assets had a significant positive effect on return on assets. By contrast, in Kazakhstan, the focus was on large oil and gas corporations, where innovation spending remained minimal and transparency low, despite the scale of investment programmes. Comparison with R.K. Perrons *et al.* (2024) broadened the perspective further. Both studies confirmed that innovation is a key factor in the resilience of the oil and gas sector to global challenges. However, the approaches diverged: R.K. Perrons *et al.* analysed individual employee behaviour, distinguishing between "researchers" and "exploiters" of innovation, and highlighted the role of education and organisational culture. The Kazakh study, by contrast, concentrated on the macro level – investment flows and strategic projects. This contrast underlines the multidimensional nature of the issue: efficiency depends both on corporate-level resource management and on the innovative behaviour of individual specialists.

Thus, Kazakhstan's oil and gas sector has demonstrated increased investment in technological projects and production modernisation, which represents an important step towards greater sustainability. At the same time, the share of innovation expenditure within revenue structures remains low, pointing to the need to strengthen financing mechanisms and improve the efficiency of innovation activities.

Perspectives for enhancing innovation activity and improving profitability in Kazakhstan's oil and gas sector

Kazakhstan's oil and gas sector remains the main driver of the country's economic development, providing more than half of export revenues and making a significant contribution to the state budget. At the same time, dependence on raw material exports and fluctuations in global energy prices create risks to financial stability. For this reason, the integration of innovation into production processes and the development of petrochemicals have become central priorities of national policy for the coming decade. In 2024, the government approved a comprehensive innovation strategy and roadmap for the oil and gas sector, covering the period from 2025 onwards and setting out systemic tasks for modernisation, digital transformation, enhanced environmental sustainability and export diversification. The key targets of this strategy include increasing the depth of oil refining to 94%, expanding refinery capacity from the current 18 to 39 million tonnes per year by 2040, and raising the share of exports of high value-added products to 30% of total production. Another benchmark is to expand supplies to China, India and Central Asian countries, in line with shifting geo-economic flows in the region. A further priority is the integration of ESG (Environmental, Social and Governance) principles to ensure compliance with international sustainable development standards, including emission reduction, reduced gas flaring and improved energy efficiency (Kazakhstan Greenlights 2025-2040..., 2025).

One of the main areas is the large-scale digitalisation of production processes. Research by G. Saktaganova *et al.* (2025) highlighted that digital transformation plays a decisive role in enhancing competitiveness and innovation capacity in Kazakhstan's industries, particularly in the context of global integration. Pilot projects for the digitalisation of oil refineries will be launched in 2025, involving artificial intelligence technologies, digital twins, predictive maintenance systems and automated monitoring. These solutions are expected to reduce production costs, shorten the time needed to detect emergencies, increase management transparency and ensure rapid responses to market fluctuations. Innovative practices are also being introduced in the upstream segment. Projects employing Internet of Things (IoT) sensors, digital modelling and enhanced oil recovery (EOR) methods are already in operation at major fields such as Tengiz, Karachaganak and Kashagan. These include CO₂ injection and polymer solutions, which make

it possible to increase hydrocarbon recovery from ageing reservoirs. At the same time, the use of unmanned aerial vehicles to monitor pipelines and facilities, as well as robotic systems employing acoustic resonance to diagnose internal pipeline conditions, is becoming more widespread (Sitmagambetov, 2025).

The second strategic vector is the strengthening of petrochemicals, aimed at reducing reliance on crude oil exports and creating new domestic value-added chains. The 2024-2030 Roadmap envisages an increase in petrochemical output from 357.8 thousand tonnes in 2023 to 1.8 million tonnes in 2030. To this end, six large-scale projects are being implemented with total investment of USD 14.7-15 billion. Their implementation is expected to create about 3,500 permanent and 16,000 temporary jobs (Kazakh Government approves 2024-2030..., 2024). These projects involve expanding the production of polypropylene, polyethylene, methanol, ammonia, urea, synthetic rubber, PET and paraxylene. A central role in this process is played by the National Petrochemical Technopark in Atyrau, being developed as a key industrial cluster for attracting foreign and domestic investment. The planned production volumes could significantly reshape the export structure by increasing the share of high value-added products. Special attention is also given to gas processing. The comprehensive plan for the development of the gas industry for 2025-2029 includes the construction of four new plants in Zhanaozen, Kashagan and Karachaganak. These facilities are intended to raise gas processing capacity to meet domestic demand and provide a stable base for petrochemicals. By 2030, gas production is expected to reach 74 billion cubic metres. Parallel efforts are planned in gas transportation and storage infrastructure to reinforce the country's energy security (Kazakhstan's new gas & petrochemical projects..., 2025).

Human capital development is a determining factor for the success of the innovation strategy. In conditions of rapid technological progress, a new generation of specialists – so-called “hybrid professionals” combining expertise in operational management with digital technologies – is required. The government has prioritised the creation of a training system based on partnerships with universities, research centres and international companies, enabling the integration of local expertise with global innovation management practices. To stimulate innovation, new R&D financing mechanisms are being introduced. These include mandatory deductions of 1% of hydrocarbon production costs or investment to the state budget, directed to centralised funding of scientific research and development. This reform is intended to address shortcomings of the previous system, where companies formally complied with requirements but innovation returns remained low. Additional tax incentives are also envisaged, including a 100% deduction for modernisation, equipment and software expenditure, as well as a zero production tax for new low-profit fields in the first five years. Such measures are designed not only to support innovation activity but also

to attract foreign investment and encourage technology transfer (Mamyshev, 2025).

Environmental aspects occupy a special place in the strategy. Kazakhstan seeks to reduce the carbon footprint of the oil and gas sector by introducing emission reduction technologies, improving waste disposal systems and tightening controls on gas flaring. The implementation of these measures is expected not only to meet the requirements of international partners but also to ensure integration into global energy value chains, where environmental responsibility is becoming increasingly critical. Thus, the innovative development of Kazakhstan's oil and gas sector in 2025-2030 will be based on large-scale investments in modernisation and petrochemicals, digital transformation and artificial intelligence, reform of the R&D system and the development of local engineering capacity. Combined with the integration of ESG principles and a gradual transition to a low-carbon economy, these efforts are expected to enhance enterprise profitability, strengthen competitiveness and consolidate Kazakhstan's position as a regional leader in the energy sector. The strategy reflects the state's ambition to combine economic growth with sustainable development objectives and adapt to the global challenges of the energy transition (Decree of the President of the Republic of Kazakhstan No. 121, 2023).

Comparison with international studies showed that the financial sustainability of the oil and gas sector is determined not only by production volumes, but also by management efficiency and the level of innovative activity. For example, M.N. Huda & M.A. Sabur (2025) demonstrated that the profitability of gas distribution companies in Bangladesh depended on liquidity and asset turnover, while excessive receivables reduced financial results. A similar conclusion was reached in research on the prospects of Kazakhstan's oil and gas sector, which highlighted innovation and modernisation as prerequisites for sustainable growth. Comparable findings were observed in the study by R. Herman *et al.* (2023), which revealed that rising energy prices in the EU reduced company profitability and heightened risks of financial instability. In this context, modernisation and the adoption of new technologies were recognised as necessary to maintain competitiveness. H.A. Abdou *et al.* (2024) likewise confirmed the dependence of financial stability on oil prices, showing that fluctuations significantly affected the Saudi Arabian stock market. For Kazakhstan, the long-term implication is the need for diversification and reduced vulnerability to external shocks.

Further evidence was provided by G.T.H. Vuong *et al.* (2024), who showed that global oil price volatility and China's 2013 pricing reform negatively affected company profitability, particularly among smaller firms. This reinforced the general thesis: the prospects for oil and gas sector development depend on the ability to adapt to global changes through innovation and infrastructure projects. S.G. Buana (2025) drew attention to corporate tax behaviour in Indonesia, which was shaped by CEO characteristics, underlining the importance of management quality.

For Kazakhstan, strengthening innovation and investment activity emerged as a decisive factor. A similar approach was also evident in the work of Y. Wang (2023), where profitability was assessed through financial ratios. In both that study and the Kazakh case, the conclusion was the same: only the combination of financial discipline with innovative development can secure long-term sustainability.

Summarising the results of the analysis, it can be concluded that Kazakhstan's oil and gas sector remains the leading driver of economic development, but its future sustainability depends on profound modernisation and the implementation of innovative solutions. The strategic documents approved for 2025-2040 identify priorities such as the digitalisation of production, development of petrochemicals, expansion of processing capacities, integration of ESG principles and the active development of human capital. Together, these measures should raise the share of high value-added products, reduce dependence on raw material exports and strengthen national energy security.

■ Conclusions

The findings of the study show that Kazakhstan's oil and gas sector remains a key driver of the economy, generating more than half of export revenues and a significant share of the state budget. Its sustainability depends not only on production volumes but also on the integration of innovation. Between 2020 and 2024, oil output ranged from 84 to 89.9 million tonnes per year (a total of 433.1 million tonnes), while gas production increased from 53-54 to 60.5 billion m³, confirming the expansion of capacity, particularly in the gas segment. Three main fields dominated – Tengiz (27.8 million tonnes in 2024, or 31.7%), Karachaganak (12.4 million tonnes) and Kashagan (17.9 million tonnes) – where innovation contributed to greater stability and productivity. The financial results of JSC KazMunayGas reflected both the effects of innovation and market volatility. In 2020, revenue was 3,625 billion tenge with a net profit of only 172 billion (profitability 4.7%). By 2022, revenue had peaked at 8,693 billion and profit reached 1,307 billion. Despite a downturn in 2023, by 2024 net profit amounted to 1,094 billion, free cash flow 1,199 billion, and net debt fell to 1,163 billion – the lowest level in five years, confirming stronger financial stability.

Total investment in technological projects exceeded 250.8 billion tenge, including 98.2 billion in high-tech areas. In 2024 alone, more than 500 initiatives were launched, including digital twins, artificial intelligence systems, seismic exploration and hydraulic fracturing technologies. Looking ahead, priorities are modernisation and diversification, with the 2024 strategy to 2040 aiming to increase the depth of oil refining to 94%, expand refinery capacity from 18 to 39 million tonnes, and raise the share of high value-added exports to 30%. A limitation of this study is that it focused on the largest companies in the sector and did not examine in detail the performance of medium-sized and smaller enterprises. Future research should extend the analysis of Kazakhstan's oil and gas industry to include the

effects of digitalisation, ESG practices and petrochemical development on long-term profitability and sustainability.

Funding
None.

Acknowledgements
None.

Conflict of Interest
None.

References

- [1] Abdou, H.A., Elamer, A.A., Abedin, M.Z., & Ibrahim, B.A. (2024). The impact of oil and global markets on Saudi stock market predictability: A machine learning approach. *Energy Economics*, 132, article number 107416. [doi: 10.1016/j.eneco.2024.107416](https://doi.org/10.1016/j.eneco.2024.107416).
- [2] Alsuhaibany, Y. (2025). Digital innovation and circular economy: A nexus for sustainable oil and gas sector transformation in Saudi Arabia. *Sustainability*, 17(3), article number 1325. [doi: 10.3390/su17031325](https://doi.org/10.3390/su17031325).
- [3] Beisembayev, G., & Akhmetkyzy, A. (2025). Assessment of ESG efficiency of oil and gas sector in Kazakhstan. *Eurasian Journal of Economic and Business Studies*, 69(1), 18-31. [doi: 10.47703/ejebs.v69i1.455](https://doi.org/10.47703/ejebs.v69i1.455).
- [4] Beisembekova, S., Sikhimbayev, M., Sikhimbayeva, D., & Srailova, G. (2022). The innovative ways of development in the oil and gas industry of Kazakhstan. *International Journal of Energy Economics and Policy*, 12(1), 9-16. [doi: 10.32479/ijeep.11505](https://doi.org/10.32479/ijeep.11505).
- [5] Bibi, S. (2024). Oil revenues, FDI and balance of payment dynamics: The case of Kazakhstan between the supercycle commodity boom and financial subordination. *Resources Policy*, 90, article number 104789. [doi: 10.1016/j.resourpol.2024.104789](https://doi.org/10.1016/j.resourpol.2024.104789).
- [6] Buana, S.G. (2025). The effect of CEO characteristics and profitability on tax aggressiveness in companies in the oil and gas sector in Indonesia for the 2021-2023 period. *Asian Journal of Engineering Social and Health*, 4(2), 263-277. [doi: 10.46799/ajesh.v4i2.530](https://doi.org/10.46799/ajesh.v4i2.530).
- [7] Decree of the President of the Republic of Kazakhstan No. 121 "Approval of the Strategy of the Republic of Kazakhstan on Achieving Carbon Neutrality by 2060". (2023, February). Retrieved from <https://surl.li/mjlcjx>.
- [8] Dongo, D.F., & Relvas, S. (2025). Evaluating the role of the oil and gas industry in energy transition in oil-producing countries: A systematic literature review. *Energy Research & Social Science*, 120, article number 103905. [doi: 10.1016/j.erss.2024.103905](https://doi.org/10.1016/j.erss.2024.103905).
- [9] Du, B., Juman, J., Makulova, A.T., Khamzayeva, A.V., & Zhai, X. (2024). Analysis of the competitiveness, complementarity, and trade combination of Kazakhstan and China in the oil and gas trade. *Economies*, 12(7), article number 182. [doi: 10.3390/economies12070182](https://doi.org/10.3390/economies12070182).
- [10] Grosu, V., Tiron-Tudor, A., Socoliuc, M., Ciubotariu, M.-S., Hlaciuc, E., Macovei, A.-G., Tulvinschi, M., Mihalciuc, C.-C., & Melega, A. (2023). Financial sustainability of oil and gas companies – basis for building resilience strategies. *Frontiers in Environmental Science*, 11, article number 1205522. [doi: 10.3389/fenvs.2023.1205522](https://doi.org/10.3389/fenvs.2023.1205522).
- [11] Hajiyeve, N., Abdullayeva, S., & Abdullayeva, E. (2024). Financial stability strategies for oil companies amidst high volatility in the global oil products market. *Energy Strategy Reviews*, 53, article number 101377. [doi: 10.1016/j.esr.2024.101377](https://doi.org/10.1016/j.esr.2024.101377).
- [12] Halttunen, K., Slade, R., & Staffell, I. (2023). Diversify or die: Strategy options for oil majors in the sustainable energy transition. *Energy Research & Social Science*, 104, article number 103253. [doi: 10.1016/j.erss.2023.103253](https://doi.org/10.1016/j.erss.2023.103253).
- [13] Herman, R., Nistor, C., & Jula, N.M. (2023). The influence of the increase in energy prices on the profitability of companies in the European Union. *Sustainability*, 15(21), article number 15404. [doi: 10.3390/su152115404](https://doi.org/10.3390/su152115404).
- [14] Huda, M.N., & Sabur, M.A. (2025). Performance evaluation: The impact of the financial ratios on profitability performance of natural gas distribution companies in Bangladesh. *International Journal of Research - GRANTHAALAYAH*, 13(3), 115-133. [doi: 10.29121/granthaalayah.v13.i3.2025.5950](https://doi.org/10.29121/granthaalayah.v13.i3.2025.5950).
- [15] Innovative technology development. (2024). Retrieved from <https://surl.li/sorhdf>.
- [16] Investment potential – oil production in Kazakhstan. (2025). Retrieved from https://s3-prod.exia.kz/articles/250120_Article_10_Investment_Potential_EN.pdf.
- [17] Jaffe, A.M., Myslikova, Z., Qi, Q., Zhang, F., Oh, S., & Ellass, J. (2023). Green innovation of state-owned oil and gas enterprises in BRICS countries: A review of performance. *Climate Policy*, 23(9), 1167-1181. [doi: 10.1080/14693062.2022.2145261](https://doi.org/10.1080/14693062.2022.2145261).
- [18] JSC NC KazMunayGas announces 2023 FY financial results. (2024). Retrieved from <https://www.kmg.kz/en/press-center/press-releases/finrez-2023/>.
- [19] JSC NC KazMunayGas announces 2024 FY financial results. (2025). Retrieved from <https://www.kmg.kz/en/press-center/press-releases/finrez-2024/>.
- [20] Karachaganak Petroleum Operating. (n.d.). Retrieved from <https://kpo-refinery.kz/>.
- [21] Kazakh Government approves 2024-2030 petrochemical industry development roadmap. (2024). Retrieved from <https://surl.li/csyrrh>.

- [22] Kazakhstan Greenlights 2025-2040 oil processing strategy. (2025). Retrieved from <https://caspiantpost.com/kazakhstan/kazakhstan-greenlights-2025-2040-oil-processing-strategy>.
- [23] Kazakhstan Petrochemical Industries Inc. (n.d.). Retrieved from <https://kpi.kz/kz/>.
- [24] Kazakhstan produced 85.7 Mt of oil and condensate in 2020. (2021). Retrieved from <https://www.enerdata.net/publications/daily-energy-news/kazakhstan-produced-857-mt-oil-and-condensate-2020.html>.
- [25] Kazakhstan raises oil and gas condensate output by 7% in 2023. (2024). Retrieved from <https://www.naturalgasworld.com/kazakhstan-hikes-oil-and-gas-condensate-output-7-in-2023-109079>.
- [26] Kazakhstan to invest \$15 billion in oil and gas chemical industry development. (2025). Retrieved from <https://timesca.com/kazakhstan-to-invest-15-billion-in-oil-and-gas-chemical-industry-development/>.
- [27] Kazakhstan's Energy Ministry again lowers outlook for domestic oil output in 2024. (2024). Retrieved from <https://interfax.com/newsroom/top-stories/108603/>.
- [28] Kazakhstan's new gas & petrochemical projects to attract \$25B investment. (2025). Retrieved from <https://globalflowcontrol.com/newsroom/kazakhstans-new-gas-petrochemical-projects-to-attract-25b-investment/>.
- [29] KazMunayGas. (n.d.). Retrieved from <https://www.kmg.kz/en/>.
- [30] Key 2021 financial results. (2022). Retrieved from <https://ar2021.kmg.kz/en/strategic-report/financial-review/key-financial-results>.
- [31] KPO reports 2024 performance results. (2025). Retrieved from <https://surl.li/zczuxb>.
- [32] Kurmanov, N., Beisengaliyev, Y., Bayandin, M., Syzdykova, E., & Tolysbayeva, M. (2022). Innovative development of Kazakhstan's raw material (oil and gas) regions: Multifactorial model for empirical analysis. *International Journal of Energy Economics and Policy*, 12(4), 131-140. doi: 10.32479/ijeep.13201.
- [33] Maldynova, A., Bodaukhan, G., Aitkhojayeva, G., Ilyas, A., & Murzabekova, B. (2023). Innovative potential of the oil and gas industry of Kazakhstan. *Eurasian Journal of Economic and Business Studies*, 67(2), 33-44. doi: 10.47703/ejebs.v2i67.253.
- [34] Mamyshev, Z. (2025). *Oil companies in Kazakhstan could face a new tax burden*. Retrieved from <https://kz.kursiv.media/en/2025-05-06/engk-yeri-oil-companies-in-kazakhstan-could-face-new-tax-burden/>.
- [35] Mashae, A. (2025). *Tengiz, Kashagan and beyond: Ranking Kazakhstan's largest oil producers*. Retrieved from <https://kz.kursiv.media/en/2025-06-18/engk-yeri-tengiz-kashagan-and-beyond-ranking-kazakhstans-largest-oil-producers/>.
- [36] Moralista, R., & Martir, E.M. (2023). Oil price volatility and business profitability: Evidence from the local market. *Journal of Advanced Zoology*, 44(S-5), 1602-1606. doi: 10.17762/jaz.v44iS-5.1398.
- [37] OECD. (n.d.). Retrieved from <https://www.oecd.org/en.html>.
- [38] Operator to invest over \$1.7 bln in growth project at Kazakhstan's Karachaganak field by 2027. (2023). Retrieved from <https://interfax.com/newsroom/top-stories/88578/>.
- [39] Perrons, R.K., Burgers, J.H., & Newton, C. (2024). Individual-level innovation in the upstream oil & gas industry: Insights from a global survey. *Geoenery Science and Engineering*, 235, article number 212692. doi: 10.1016/j.geoen.2024.212692.
- [40] Saktaganova, G., Karipova, A., Mukhiyayeva, D., Zhanseitova, G., & Saktaganova, I. (2025). Digital transformation in the transport and logistics sector of Kazakhstan: Challenges and opportunities for global integration. *Scientific Bulletin of Mukachevo State University. Series "Economics"*, 12(2), 163-176. doi: 10.52566/msu-econ2.2025.163.
- [41] Shalbolova, U., Salykova, L., Bissenov, K., & Makhanov, S. (2024). Investments in the processing sector of the oil and gas complex of Republic of Kazakhstan. *Gospodarka Surowcami Mineralnymi – Mineral Resources Management*, 40(3), 135-152. doi: 10.24425/gsm.2024.151532.
- [42] Sitmagambetov, N. (2025). *Hybrid professionals are key to future of Kazakhstan's oil and gas sector*. Retrieved from <https://astanatimes.com/2025/05/hybrid-professionals-are-key-to-future-of-kazakhstans-oil-and-gas-sector/>.
- [43] Sletten, S., Jonasmo, K.W., & Solheim, M.C.W. (2023). Changing industrial trajectories through business model innovation: A case study of the oil and gas industry in Norway. *European Planning Studies*, 31(7), 1555-1574. doi: 10.1080/09654313.2023.2185503.
- [44] Tengiz Effect – 2033 and beyond. (2024). Retrieved from https://s3-prod.exia.kz/articles/240913_Article%203_Tengiz%20Effect%20E2%80%93202033%20and%20beyond.pdf.
- [45] Tengizchevroil Fact Sheet. (2024). Retrieved from https://tengizchevroil.com/docs/default-source/default-document-library/facts-and-figures/2024/tco-fact-sheet-4q-2024_final_e.pdf?sfvrsn=9bcecc5c_2.
- [46] Tengizchevroil. (n.d.a). Retrieved from <https://www.tengizchevroil.com/home>.
- [47] Tengizchevroil. (n.d.b). *Projects*. Retrieved from <https://tengizchevroil.com/projects#>.
- [48] Vuong, G.T.H., Nguyen, M.H., & Hoang, K. (2024). Oil price uncertainty, oil pricing reform, and corporate profitability: The case of China. *PLOS ONE*, 19(2), article number e0297554. doi: 10.1371/journal.pone.0297554.
- [49] Wang, Y. (2023). Investment analysis of listed companies in the oil & gas industry. *BCP Business & Management*, 37, 266-272. doi: 10.54691/bcpbm.v37i.3575.

- [50] Zengin, B., & Kurt, G. (2024). The relationship between innovation activities and profitability of BIST manufacturing companies. *Journal of the Faculty of Economics and Administrative Sciences of Kafkas University*, 15(29), 188-213. doi: [10.36543/kauibfd.2024.008](https://doi.org/10.36543/kauibfd.2024.008).
- [51] Zhumadilla, S., Sikhimbayev, M.R., Kadyrova, G.A., & Sikhimbaeva, D.R. (2024). Oil and gas industry of Kazakhstan: Ways to develop innovative processes. *Bulletin of the Kazakh University of Economics, Finance and International Trade*, 3(56), 19-26. doi: [10.52260/2304-7216.2024.3\(56\).2](https://doi.org/10.52260/2304-7216.2024.3(56).2).

Дослідження взаємозв'язку між рівнем інноваційної активності та рентабельністю підприємств нафтогазового сектору Казахстану

Ольга Москаленко

Кандидат економічних наук, доцент
 Киргизький національний університет імені Ж. Баласагіна
 720033, вул. Фрунзе, 547, м. Бішкек, Киргизька Республіка
<https://orcid.org/0000-0002-4599-4817>

■ **Анотація.** Метою цього дослідження було оцінити, як інноваційна діяльність впливає на фінансові результати підприємств нафтогазового сектору Казахстану. Дослідження мало емпіричний характер і охоплювало період 2020-2024 років, базуючись на офіційній фінансовій звітності Акціонерного товариства «КазМунайГаз» та корпоративних документах щодо інноваційних програм. Методологія поєднувала статистичний аналіз обсягів виробництва та фінансової динаміки з контент-аналізом стратегічних проєктів. Результати показали, що видобуток нафти коливався у межах 84-89,9 млн тонн, усього – 433,1 млн тонн, тоді як видобуток газу зріс із 53-54 до 60,5 млрд м³. У 2024 році родовища Тенгіз, Карачаганак і Кашаган забезпечили понад 60 % національного видобутку (27,8; 12,4 та 17,9 млн тонн відповідно). Фінансові показники відображали як вплив інновацій, так і ринкову волатильність: у 2020 році чистий прибуток становив лише 172 млрд тенге при виручці 3 625 млрд, тоді як у 2022 році прибуток досяг максимуму – 1 307 млрд тенге, а виручка – 8 693 млрд. До 2024 року чистий прибуток становив 1 094 млрд тенге, вільний грошовий потік – 1 199 млрд, а чистий борг знизився до 1 163 млрд – найнижчого рівня за п'ять років. Інвестиції в технологічні проєкти перевищили 250,8 млрд тенге, з яких 98,2 млрд було спрямовано на високотехнологічні напрями. У 2024 році реалізовано понад 500 ініціатив, включно з цифровими двійниками та системами штучного інтелекту. Результати цього дослідження можуть бути використані для розроблення ефективної стратегії інноваційного розвитку нафтогазових підприємств Казахстану з метою підвищення їхньої фінансової стійкості та конкурентоспроможності

■ **Ключові слова:** стратегії; дохід; інвестиції; конкурентоспроможність; ефективність